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Titolo	CO2 and CO as Feedstock : Sustainable Carbon Sources for the Circular Economy / / edited by Manfred Kircher, Thomas Schwarz
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ISBN	9783031278112 3031278119
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Collana	Circular Economy and Sustainability, , 2731-5517
Altri autori (Persone)	SchwarzThomas
Disciplina	665.89
Soggetti	Earth sciences Geography Chemistry Biotechnology Economic geography Engineering geology Earth and Environmental Sciences Economic Geography Geoengineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	CO2 and CO: sustainable carbon sources for circular value creation -- CO2: Sources and volumes -- Conventional processes for hydrogen production -- Alternative biological and biotechnological processes for hydrogen production -- Production of synthesis gas -- Chemical-catalytic conversion of CO2 and CO -- Microbial processes: Biocatalytic conversion -- Microbial processes for the conversion of CO2 und CO -- Microbial processes: Current developments in gas fermentation -- Microbial processes: Production of polyhydroxyalkanoates from CO2 -- Microbial processes: Photosynthetic microalgae -- Challenges in down streaming from chemical and biotechnological processes -- Utilization of C1 gas streams from steelworks -- Utilization of C1 gas streams from cement plants -- Utilization of C1 gas streams form power plants -- Utilization of C1 gas streams from chemical processes -- Utilization

of C1 gas streams from bioprocesses including biogas plants -- Utilization of residuals and C1 gas streams: Organic waste, sludge and agricultural residuals -- Utilization of residuals and C1 gas streams: Pyrolysis process of Concord Blue -- Utilization of residuals and C1 gas streams: CO2 sources in agriculture -- Recycling CO2 from waste incineration closes carbon cycles -- Utilization of C1 gases: Impact on sustainability -- Regional Development -- Utilization of C1 gases: The regulatory framework -- R&D&I and industry examples: Challenges and opportunities in scaling up -- R&D&I and industry examples: Covestro' s Dream Production -- R&D&I and industry examples: LanzaTech's gas fermentation -- R&D&I and industry examples: The CCU project Carbon2Chem -- R&D&I and industry examples: The CO2 electrorefinery - a new concept for carbon dioxide (CO2) capture and utilization (CCU).-R&D&I and industry examples: The vision of b.fab GmbH -- R&D&I and industry examples: Industrial gases as a carbon source for terpene production -- ZeroCarbFP: A two-step microbial conversion of CO2-rich off-gas into valuable products -- Introduction -- R&D&I and industry examples: Ineratec's ICO2CHEM project to utilize CO2 -- Piloting, scale-up, and demonstration -- Final evaluation and summary.

Sommario/riassunto

Climate protection and raw material change require new, sustainable carbon sources for the chemical and fuel industries. In fact, processes that recycle carbon-containing emission and gas streams industrially are reaching industrial practice. They will make an important contribution to reducing carbon emissions and moving towards a true carbon circular economy. This book describes the basics of chemical and biotechnological processes for converting CO and CO2 into chemicals and fuels. Furthermore, it addresses potentials for the manufacturing economy, industrial sites and regions and answers the following questions. Which emission and gas streams offer feedstock potential? What processes are already implemented, being tested and under development? What products can be made from gaseous carbon sources? How can carbon emitting and consuming industries be linked into new value chains? What is the regulatory framework? What does the ecological footprint look like? How do the new processes contribute to the regional economy and thus to social acceptance among consumers and among decision-makers in companies and politics? Providing companies with sustainable carbon sources is a central question of the circular economy, which must be answered with technical processes, new cross-sector value chains, adapted infrastructure and further developed framework conditions. This concerns scientists and decision-makers in companies alike. In this book, they as well as interested laymen will find a comprehensive overview of the state of the art in both, technology and research, and of the overriding issues involved in establishing CO2 and CO as feedstocks. The Editors Dr. Manfred Kircher, freelance consultant (KADIB - Kircher Advice in Bioeconomy), Member of the Board of BioBall e.V. (Bioeconomy in Metropolitan Regions) and Chairman of the Advisory Board of CLIB-Cluster e.V. (Cluster Industrial Biotechnology) Dr. Thomas Schwarz (†), Chief Scientific Officer of bitop AG and Chairman of the Board of CLIB-Cluster e.V. (Cluster Industrial Biotechnology).

2. Record Nr. UNINA9910557672003321

Autore	Hori Kiyosumi
Titolo	Molecular Research in Rice : Agronomically Important Traits
Pubbl/distr/stampa	Basel, Switzerland, : MDPI - Multidisciplinary Digital Publishing Institute, 2020
Descrizione fisica	1 online resource (378 p.)
Soggetti	Biology, life sciences Research & information: general Technology, engineering, agriculture
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	This volume presents recent research achievements concerning the molecular genetic basis of agronomic traits in rice. Rice (Oryza sativa L.) is the most important food crop in the world, being a staple food for more than half of the world's population. Recent improvements in living standards have increased the worldwide demand for high-yielding and high-quality rice cultivars. To achieve improved agricultural performance in rice, while overcoming the challenges presented by climate change, it is essential to understand the molecular basis of agronomically important traits. Recently developed techniques in molecular biology, especially in genomics and other related omics fields, can reveal the complex molecular mechanisms involved in the control of agronomic traits. As rice was the first crop genome to be sequenced, in 2004, molecular research tools for rice are well-established, and further molecular studies will enable the development of novel rice cultivars with superior agronomic performance.